

Offshore Malaysia

Integrated solution helps operator save five rig days, maximize reservoir contact

Geosteering solutions and collaborative efforts lead to time savings and enhanced reservoir understanding in Malaysia

CHALLENGE

- Optimize horizontal well placement in uncertain reservoir conditions
- Drill reservoir section in one run with downhole challenges
- High torque and drag, hole cleaning, and ECD limitations
- Vibration challenges with a 250-ft borehole assembly (BHA)

SOLUTION

- Use of Geo-Pilot® 7600 RSS, M/LWD sensors, and GeoTap® formation pressure testing service for precise wellbore placement and accurate real-time pore pressure measurements
- Use of EarthStar® geosteering to enable modeling and analysis of logging while drilling (LWD) data for quick decision-making

RESULT

- Saved five rig days for operator
- Reached optimal landing point, aided by reservoir insight and engineered drilling solution

Overview

After a successful offshore development campaign, an operator in Malaysia asked Halliburton to develop a geosteering solution for an extended reach drilling (ERD) well. The goal was to maximize reservoir contact and enhance understanding for future development. Halliburton's multidisciplinary team collaborated with the operator and third parties to address challenges, such as stratigraphic changes and potential reservoir exits. The team used advanced tools such as Geo-Pilot® 7600 rotary steerable system (RSS) and GeoTap® formation pressure testing service to drill, geosteer, and log the well in one run. This integrated approach saved five rig days and improved reservoir insights.

Challenge

The operator encountered challenges drilling an ERD well with the longest shallow true vertical depth (TVD) in the area. Key obstacles included the navigation of stratigraphic lateral changes and the risk of reservoir exits in the horizontal section. The operation required precise geosteering, logging, and well placement within the reservoir's sweet spot. Additional risks involved anticollision, high torque and drag, hole cleaning, equivalent circulating density (ECD) limitations, drilling into depleted zones, and vibration issues with a 250-ft borehole assembly (BHA). This was the operator's first attempt to drill, geosteer, and log the reservoir section in a single run — a factor that added complexity and potential risks to the project.

Solution

Halliburton collaborated with the operator to design a comprehensive solution to optimize drilling performance and mitigate potential risks. Key technologies included the Geo-Pilot® 7600 RSS, a full suite of measurement-while-drilling sensors, and the GeoTap® formation pressure testing service. An automated vibration dampening system was critical in the reduction of stick-slip and torque fluctuations. This mitigation helped enable superior drilling performance. The Geo-Pilot® system facilitated a smooth wellbore, while GeoTap® provided real-time pore pressure measurements with high accuracy.



5 DAYS

Halliburton efficiencies
saved 5 rig days
for the operator

CASE STUDY

The project management team used multiwell data analytics and performance benchmark tools to evaluate historical offset wells, identify visible lost time, and define areas for improvement. Customized drilling and tripping practices and optimized solids-control equipment enhanced hole cleaning efficiency. The EarthStar® very deep resistivity service and MRIL®-WD™ magnetic resonance imaging LWD tool provided valuable reservoir data. Real-time monitoring by a Halliburton engineer confirmed tool performance.

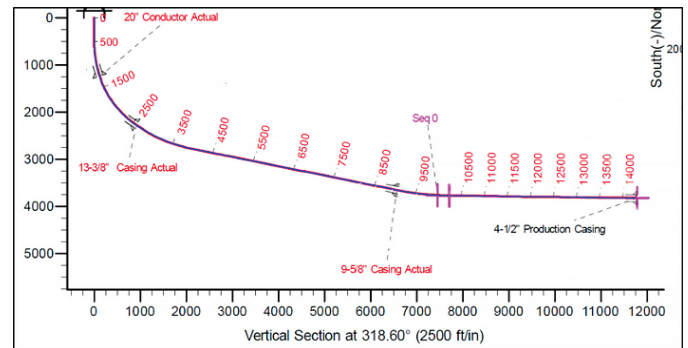
Halliburton's integrated remote operations team optimized drilling and tripping parameters. LOGIX™ automation and remote operations improved time calculations and projections.

The team conducted detailed pre-planning discussions that covered all aspects of the project and facilitated thorough preparation. This integrated approach enabled the operator to drill the reservoir section in one run. This efficiency saved five rig days and improved reservoir insights.

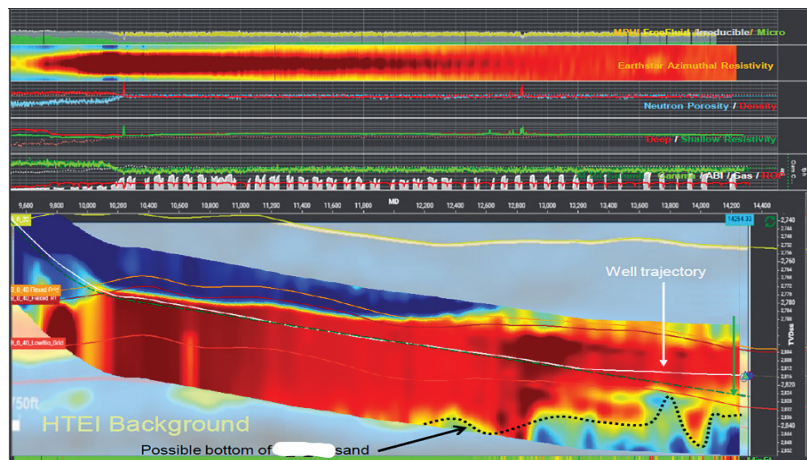
Result

Halliburton's customized solutions helped the operator achieve efficiency and maximize reservoir contact. With the placement of the well in the sweet spot and extension of the lateral section, the operator maximized reservoir contact and enhanced gas production. The customized bottom hole assembly (BHA) allowed the operator to complete operations in a single run. This saved time and reduced costs.

Halliburton's integrated approach enabled the operator to drill the reservoir section in one run for the first time. This saved five rig days and improved reservoir insights. The success not only optimized current production but provided a solid foundation for future development and appraisal efforts.



Well trajectory (plan versus actual) for the reference well.



Geosteering log with modeled and real-time data displaying well trajectory.

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